

Listing of Claims:

1. (Previously Amended) A barbed suture for connecting human or animal tissue, said suture comprising (a) an elongated body having a longitudinal axis, a first end and a second end and (b) a plurality of barbs projecting from the body, each barb facing in a direction and being adapted for resisting movement of the suture, when in tissue, in an opposite direction from the direction in which the barb faces, the suture comprising barbs with a configuration that includes an underside of the barbs, where the underside projects from the body along a line transverse to the longitudinal axis of the body, the line being arcuate, the barbs having a multiple spiral disposition on the body, wherein the multiple spiral disposition includes barbs spaced longitudinally along the body such that a plane perpendicular to the longitudinal axis of the suture and cutting transversely through the suture and intersecting a barb will not intersect any other barb.

2. (Previously Amended) A barbed suture for connecting human or animal tissue, said suture comprising (a) an elongated body having a longitudinal axis, a first end and a second end and (b) a plurality of barbs projecting from the body, each barb facing in a direction and being adapted for resisting movement of the suture, when in tissue, in an opposite direction from the direction in which the barb faces, the suture comprising barbs with a configuration that includes an underside of the barbs, where the underside projects from the body along a line transverse to the longitudinal axis of the body, the line being arcuate, the barbs having a multiple spiral disposition on the body, and the barbs are all facing in a direction toward only one of the first end and the second end, wherein the multiple spiral disposition includes barbs spaced longitudinally along the body such that a plane perpendicular to the longitudinal axis of the suture and cutting transversely through the suture and intersecting a barb will not intersect any other barb.

3. (Previously Amended) A barbed suture for connecting human or animal tissue, said suture comprising (a) an elongated body having a longitudinal axis, a first end and a second end and (b) a plurality of barbs projecting from the body, each barb facing in a direction and

being adapted for resisting movement of the suture, when in tissue, in an opposite direction from the direction in which the barb faces, the suture comprising barbs with a configuration that includes an underside of the barbs, where the underside projects from the body along a line transverse to the longitudinal axis of the body, the line being arcuate, the barbs having a multiple spiral disposition on the body, and the barbed suture has at least a first barbed portion and a second barbed portion, wherein the barbs of the first portion are facing in a direction toward only the first end and the barbs of the second portion are facing in a direction toward only the second end, wherein the multiple spiral disposition includes barbs spaced longitudinally along the body such that a plane perpendicular to the longitudinal axis of the suture and cutting transversely through the suture and intersecting a barb will not intersect any other barb.

4-5. (Canceled)

6. (Previously Amended) A barbed suture for connecting human or animal tissue, said suture comprising (a) an elongated body having a longitudinal axis, first end and a second end and (b) a plurality of barbs projecting from the body, each barb facing in a direction and being adapted for resisting movement of the suture, when in tissue, in an opposite direction from the direction in which the barb faces, the suture comprising barbs with a configuration that includes an underside of the barbs, where the underside projects from the body along a line transverse to the longitudinal axis of the body, the line being arcuate, wherein the barbs are in a multiple spiral disposition and the barbed suture is made from a suture filament having a portion that is twisted from about 2 to about 17 times per inch when the barbs are escarped into the suture filament to make the barbed suture.

7. (Previously Amended) A barbed suture for connecting human or animal tissue, said suture comprising (a) an elongated body having a longitudinal axis, a first end and a second end and (b) a plurality of barbs projecting from the body, each barb facing in a direction and being adapted for resisting movement of the suture, when in tissue, in an opposite direction from the direction in which the barb faces, the suture comprising barbs with a configuration that includes an underside of the barbs, where the underside projects from the body along a line

transverse to the longitudinal axis of the body, the line being arcuate, wherein the barbs are in a multiple spiral disposition and the suture has a spirality angle α ranging from about 5 degrees to about 25 degrees.

8. (Original) The barbed suture according to claim 7, wherein the suture has a spirality angle α ranging from about 7 degrees to about 22 degrees.

9. (Original) The barbed suture according to claim 8, the suture has a spirality angle α ranging from about 12 degrees to about 18 degrees.

10-11. (Canceled)

12. (Original) The barbed suture according to claim 1, wherein the suture is made from a material selected from the group consisting of a bio-absorbable material, a non-absorbable material, and combinations thereof.

13. (Previously Amended) The barbed suture according to claim 12, wherein the suture is made from a bio-absorbable material selected from the group consisting of polydioxanone, polylactide, polyglycolide, polycaprolactone, and combinations thereof.

14. (Previously Amended) The barbed suture according to claim 12, wherein the suture is made from a non-absorbable material selected from the group consisting of a polymer, a metal, a metal alloy, a natural fiber, and combinations thereof.

15. (Original) The barbed suture according to claim 14, wherein the polymer is selected from the group consisting of polyamide, polyester, polypropylene, polyurethane, polytetrafluoroethylene, polyether-ester, and combinations thereof.

16. (Previously Amended) A barbed suture for connecting human or animal tissue, said suture comprising (a) an elongated body having a longitudinal axis, a first end and a second

end and a diameter and (b) a plurality of barbs projecting from the body, each barb facing in a direction and being adapted for resisting movement of the suture, when in tissue, in an opposite direction from the direction in which the barb faces, the suture comprising barbs with a configuration that includes an underside of the barbs, where the underside projects from the body along a line transverse to the longitudinal axis of the body, the line being arcuate, wherein:

- (I) the barbs have a multiple spiral disposition on the body, and
- (II) the barbs have a configuration selected from the group consisting of a barb cut angle θ ranging from about 140 degrees to about 175 degrees, a barb cut depth with a ratio of the barb cut depth to the suture diameter ranging from about 0.05 to about 0.6, a barb cut length with a ratio of the barb cut length to the suture diameter ranging from about 0.2 to about 2, a barb cut distance with a ratio of the barb cut distance to the suture diameter ranging from about 0.1 to about 6, a corrugated barb underside, an arcuate barb base, at least two sets of barbs with each set having a barb size different from the barb size of the other set, and combinations thereof.

17. (Original) The barbed suture according to claim 16, wherein the suture is made from a material selected from the group consisting of a bio-absorbable material, a non-absorbable material, and combinations thereof.

18. (Previously Amended) The barbed suture according to claim 17, wherein the suture is made from a bio-absorbable material selected from the group consisting of polydioxanone, polylactide, polyglycolide, polycaprolactone, and combinations thereof.

19. (Previously Amended) The barbed suture according to claim 17, wherein the suture is made from a non-absorbable material selected from the group consisting of a polymer, a metal, a metal alloy, a natural fiber, and combinations thereof.

20. (Original) The barbed suture according to claim 19, wherein the polymer is selected from the group consisting of polyamide, polyester, polypropylene, polyurethane, polytetrafluoroethylene, polyether-ester, and combinations thereof.

21. (Canceled)

22. (Previously Amended) A barbed suture for connecting human or animal tissue, said suture comprising (a) an elongated body having a longitudinal axis, a first end, a second end and a diameter and (b) a plurality of barbs projecting from the body, each barb facing in a direction and being adapted for resisting movement of the suture, when in tissue, in an opposite direction from the direction in which the barb faces, the suture comprising barbs with a configuration that includes an underside of the barbs, where the underside projects from the body along a line transverse to the longitudinal axis of the body, the line being arcuate, wherein:

- (I) the barbs have a disposition on the body comprising a multiple spiral disposition with a spirality angle α ranging from about 5° to about 25° , and
- (II) the barbs have a configuration comprising (i) a barb cut θ angle ranging from about 140° to about 175° , (ii) a barb cut depth with a ratio of the barb cut depth to the suture diameter ranging from about 0.05 to about 0.6, (iii) a barb cut length with a ratio of the barb cut length to the suture diameter ranging from about 0.02 to about 2, and (iv) a barb cut distance with a ratio of the barb cut distance to the suture diameter ranges from about 0.01 to about 6.

23–30. (Canceled)

31. (Previously Presented) The barbed suture according to claim 2, wherein the suture is made from a material selected from the group consisting of a bio-absorbable material, a non-absorbable material, and combinations thereof.

32. (Previously Amended) The barbed suture according to claim 31, wherein the suture is made from a bio-absorbable material selected from the group consisting of polydioxanone, polylactide, polyglycolide, polycaprolactone, and combinations thereof.

33. (Previously Amended) The barbed suture according to claim 31, wherein the suture is made from a non-absorbable material selected from the group consisting of a polymer, a metal, a metal alloy, a natural fiber, and combinations thereof.

34. (Previously Presented) The barbed suture according to claim 33, wherein the polymer is selected from the group consisting of polyamide, polyester, polypropylene, polyurethane, polytetrafluoroethylene, polyether-ester, and combinations thereof.

35. (Previously Presented) The barbed suture according to claim 3, wherein the suture is made from a material selected from the group consisting of a bio-absorbable material, a non-absorbable material, and combinations thereof.

36. (Previously Amended) The barbed suture according to claim 35, wherein the suture is made from a bio-absorbable material selected from the group consisting of polydioxanone, polylactide, polyglycolide, polycaprolactone, and combinations thereof.

37. (Previously Amended) The barbed suture according to claim 35, wherein the suture is made from a non-absorbable material selected from the group consisting of a polymer, a metal, a metal alloy, a natural fiber, and combinations thereof.

38. (Previously Presented) The barbed suture according to claim 37, wherein the polymer is selected from the group consisting of polyamide, polyester, polypropylene, polyurethane, polytetrafluoroethylene, polyether-ester, and combinations thereof.

39-50. (Canceled)

51. (Previously Presented) The barbed suture according to claim 6, wherein the suture is made from a material selected from the group consisting of a bio-absorbable material, a non-absorbable material, and combinations thereof.

52. (Previously Amended) The barbed suture according to claim 51, wherein the suture is made from a bio-absorbable material selected from the group consisting of polydioxanone, polylactide, polyglycolide, polycaprolactone, and combinations thereof.

53. (Previously Amended) The barbed suture according to claim 51, wherein the suture is made from a non-absorbable material selected from the group consisting of a polymer, a metal, a metal alloy, a natural fiber, and combinations thereof.

54. (Previously Presented) The barbed suture according to claim 53, wherein the polymer is selected from the group consisting of polyamide, polyester, polypropylene, polyurethane, polytetrafluoroethylene, polyether-ester, and combinations thereof.

55. (Previously Presented) The barbed suture according to claim 6, wherein the barbs are all facing in a direction toward only one of the first end and the second end.

56. (Previously Presented) The barbed suture according to claim 6, wherein the barbed suture has at least a first barbed portion and a second barbed portion, and wherein the barbs of the first portion are facing in a direction toward only the first end and the barbs of the second portion are facing in a direction toward only the second end.

57. (Previously Presented) The barbed suture according to claim 7, wherein the suture is made from a material selected from the group consisting of a bio-absorbable material, a non-absorbable material, and combinations thereof.

58. (Previously Amended) The barbed suture according to claim 57, wherein the suture is made from a bio-absorbable material selected from the group consisting of polydioxanone, polylactide, polyglycolide, polycaprolactone, and combinations thereof.

59. (Previously Amended) The barbed suture according to claim 57, wherein the suture is made from a non-absorbable material selected from the group consisting of a polymer, a metal, a metal alloy, a natural fiber, and combinations thereof.

60. (Previously Presented) The barbed suture according to claim 59, wherein the polymer is selected from the group consisting of polyamide, polyester, polypropylene, polyurethane, polytetrafluoroethylene, polyether-ester, and combinations thereof.

61. (Previously Presented) The barbed suture according to claim 7, wherein the barbs are all facing in a direction toward only one of the first end and the second end.

62. (Previously Presented) The barbed suture according to claim 7, wherein the barbed suture has at least a first barbed portion and a second barbed portion, and wherein the barbs of the first portion are facing in a direction toward only the first end and the barbs of the second portion are facing in a direction toward only the second end.

63–68. (Canceled)

69. (Previously Presented) The barbed suture according to claim 16, wherein the barbs are all facing in a direction toward only one of the first end and the second end.

70. (Previously Presented) The barbed suture according to claim 16, wherein the barbed suture has at least a first barbed portion and a second barbed portion, and wherein the barbs of the first portion are facing in a direction toward only the first end and the barbs of the second portion are facing in a direction toward only the second end.

71–76. (Canceled)

77. (Previously Presented) The barbed suture according to claim 22, wherein the suture is made from a material selected from the group consisting of a bio-absorbable material, a non-absorbable material, and combinations thereof.

78. (Previously Amended) The barbed suture according to claim 77, wherein the suture is made from a bio-absorbable material selected from the group consisting of polydioxanone, polylactide, polyglycolide, polycaprolactone, and combinations thereof.

79. (Previously Amended) The barbed suture according to claim 77, wherein the suture is made from a non-absorbable material selected from the group consisting of a polymer, a metal, a metal alloy, a natural fiber, and combinations thereof.

80. (Previously Presented) The barbed suture according to claim 79, wherein the polymer is selected from the group consisting of polyamide, polyester, polypropylene, polyurethane, polytetrafluoroethylene, polyether-ester, and combinations thereof.

81. (Previously Presented) The barbed suture according to claim 22, wherein the barbs are all facing in a direction toward only one of the first end and the second end.

82. (Previously Presented) The barbed suture according to claim 22, wherein the barbed suture has at least a first barbed portion and a second barbed portion, and wherein the barbs of the first portion are facing in a direction toward only the first end and the barbs of the second portion are facing in a direction toward only the second end.

83-98. (Canceled)